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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Upcoming Changes to the National Spatial Reference System (NSRS)

AGENCY: The Office of the National Geodetic Survey (NGS), National Ocean Service (NOS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce (DOC).

ACTION: Notice of upcoming changes.

SUMMARY: The National Geodetic Survey (NGS) is in the process of modernizing the National Spatial Reference System (NSRS) and plans to replace all three North American Datum of 1983 (NAD 83) frames and all vertical datums, including the North American Vertical Datum of 1988 (NAVD 88), with four new terrestrial reference frames and one new geopotential datum to which all geodetic coordinates and derived coordinates within the NSRS will be referenced. The new reference frames will rely primarily on Global Navigation Satellite Systems (GNSS), such as the Global Positioning System (GPS), as well as on a gravimetric geoid model resulting from the Gravity for the Redefinition of the American Vertical Datum (GRAV-D) Project. The modernized NSRS will be easier to access and maintain than the existing NSRS, which relies on physical survey marks that deteriorate over time and will result in new, more accurate, time-tagged geodetic coordinates (i.e., latitude, longitude, ellipsoid height, orthometric height, acceleration of gravity, deflections of the vertical, and others) at all geodetic control points within the NSRS. Additionally, coordinates will be estimated within these frames and datum at five-year reference epochs from the time-tagged coordinates, beginning with 2020.00.

Initial completion and rollout of the NSRS modernization is expected to occur between 2022 and 2025, with additional support tools and services rolled out in subsequent years.

DATES: The modernization of the NSRS will occur between 2022 and 2025, with the release of additional tools and services occurring between 3 and 5 years later.

ADDRESSES: National Geodetic Survey, 1315 East-West Highway, Silver Spring, MD, 20910.

FOR FURTHER INFORMATION CONTACT: Dr. Dru Smith, NSRS Modernization Manager, by e-mail at dru.smith@noaa.gov, phone at (240) 533-9654, or mail at NOAA/NOS/NGS 1315 East-West Highway, Silver Spring, MD, 20910.

SUPPLEMENTARY INFORMATION:

The modernization of the NSRS is designed to improve the accuracy of federal geodetic control. For over 200 years, NGS and its predecessor agencies, dating back to the founding of the Survey of the Coast in 1807, have been the stewards of the geodetic infrastructure—the NSRS—of the United States. As technology and scientific knowledge advance, NGS occasionally modernizes the NSRS. This announcement reflects part of the latest modernization effort.

The last significant modernization of the NSRS resulted in the creation of the original North American Datum of 1983 (54 FR 25318) and the North American Vertical Datum of 1988 (58 FR 34245). These datums were defined before the widespread use of GPS and GNSS and were determined using classical geodetic measurement techniques. Over the years, minor corrections to and expansion of the NSRS occurred; however, no significant update was possible until now. Through modern geodetic surveying technology, extensive data collection initiatives, and advances in scientific knowledge, a

more accurate, modern NSRS is possible. The new frames and datum shall be known as the “North American Terrestrial Reference Frame of 2022,” the “Pacific Terrestrial Reference Frame of 2022,” the “Caribbean Terrestrial Reference Frame of 2022,” the “Mariana Terrestrial Reference Frame of 2022,” and the “North American-Pacific Geopotential Datum of 2022;” and may be referred to as “NATRF2022,” “PATRF2022,” “CATRF2022,” “MATRF2022,” and “NAPGD2022,” respectively. In order to accustom users to a time-dependent NSRS, NGS will also be estimating, and providing to the public, coordinates on geodetic control points at five-year reference epochs.

Additional information regarding the modernization of the NSRS may be found at <https://geodesy.noaa.gov/datums/newdatums/index.shtml>.

(Authority: Coast and Geodetic Survey Act of 1947, 33 U.S.C. 883a et seq.)

Juliana P. Blackwell

Director,

National Geodetic Survey,

National Ocean Service,

National Oceanic and Atmospheric Administration

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